

Are nonrespondents to the American Community Survey different from respondents?

Theresa Leslie, Dave Raglin, and
Emily Braker
U.S. Census Bureau

Reasons Study Conducted

The ACS was conducted nationally at the same time as Census 2000. Thus, we can:

- Study characteristics of ACS nonrespondents
 - by matching to Census 2000 response files
- Look at the effect of ACS noninterview adjustment procedures on the data

Ways to Study Characteristics of Nonrespondents

Some common approaches include:

- Using frame data
- Conducting survey participation surveys
- Conducting match studies

Methodology

- This study was built on the match study idea.
- Linked 3,809 ACS nonresponding addresses to Census 2000 response files.
 - For March, April, and May 2000
 - Used address identification number
- Used Census 2000 data as proxy for ACS nonrespondents
 - Data obtained for 83% of addresses
 - Data for 6,782 people.

Questions Study Answers

- Are nonrespondents to the ACS different from respondents in terms of various demographic characteristics?
- Do the ACS nonresponse adjustment procedures reflect differences?

Terminology

- **Respondents** are interviewed households in the ACS
- **Nonrespondents** are non-interviewed households in the ACS after three modes of data collection
 - Mail
 - Telephone
 - Personal Visit

Terminology (Cont.)

Noninterview adjustment –

- changes the weight of all responding occupied housing units
- accounts for responding and nonresponding housing units within weighting classes.
- uses data from responding households in same tract and month in sample as nonrespondents

Major Findings

- Nonrespondents are different than respondents to the ACS in 5 demographic characteristics examined
- Noninterview adjustments procedures do correct for most of the differences

Characteristics

Produced distributions for:

- gender,
- age,
- relationship,
- race,
- Hispanic origin

Key Measures

Differences in distributions for given response category compared:

1. Compared nonrespondents to respondents
2. Compared combined respondent and nonrespondent data to respondent data adjusted for nonresponse

Hypothesis Testing

- Testing of the tables
 - Chi-square test (See Smith and Starsinic, 2002)
- Testing of differences for each variable category
 - % category x_n = % category x_r ,
where n=nonrespondents and r=respondents

Testing of Tables— Nonrespondents vs. Respondents

Table	Test Statistic
Gender	$X^2 = 4.48, df=1, p=0.034$
Age	$X^2 = 101.30, df=12, p=0.000$
Relationship	$X^2 = 83.35, df=4, p=0.000$
Race	$X^2 = 146.53, df=6, p=0.000$
Hispanic Origin	$X^2 = 18.93, df=4, p=0.001$

Gender

(Statistically different response categories only)

	Respondents	Nonrespondents	Difference
Male	48.5%	49.9%	1.4%
Female	51.5%	50.1%	-1.4%

Age

(Statistically different response categories only)

	Respondents	Nonrespondents	Difference
25-34	14.0%	15.7%	1.7%
35-44	16.4%	18.4%	2.0%
65-74	6.8%	4.6%	-2.2%
75-84	4.4%	2.5%	-1.8%
85+	1.2%	0.7%	-0.5%

Relationship

(Statistically different response categories only)

	Respondents	Nonrespondents	Difference
Spouse	20.0%	16.4%	-3.6%
Other relative	6.3%	7.8%	1.6%

Race and Hispanic Origin

(Statistically different response categories only)

	Respondents	Nonrespondents	Difference
White	77.8%	65.2%	-12.6%
Black	11.5%	19.2%	7.7%
Other race	3.7%	6.3%	2.6%
Other Hispanic	2.9%	4.5%	1.6%

Testing of Tables— Combined vs. Weighted

Table	Test Statistic
Gender	$\chi^2=2.57, df=1, p=0.109$
Age	$\chi^2=23.45, df=12, p=0.024$
Relationship	$\chi^2=8.45, df=4, p=0.077$
Race	$\chi^2=2.32, df=6, p=0.888$
Hispanic Origin	$\chi^2=3.56, df=4, p=0.468$

Age and Relationship

(Statistically different response categories only)

	Combined	Weighted	Difference
35-44	16.4%	16.1%	-0.3%
Householder	38.9%	39.3%	0.5%

Significance of Findings

- More insight into who ACS nonrespondents are
- Additional data to use to evaluate noninterview adjustment procedures

Limitations

- Used address identification number to get census data as proxy for ACS nonrespondents, assuming:
 - same address visited for ACS and Census 2000
 - census household at address when ACS data collected
 - responses the same for ACS and Census 2000
- Obtained data for 83 percent of nonresponding addresses, assuming:
 - data representative of all nonrespondents

Summary

- ACS nonrespondents are different from respondents.
 - More likely to be male, black, and 25-44.
- ACS weighting to adjust for nonresponse correcting most differences.
- More research needed.

Contact Information

Theresa Leslie:

E-mail: Theresa.F.Leslie@census.gov

(30) 763-2958